

Patent Claims

1. Device for carrying out chemical reactions and processes in high-frequency fields, consisting of a high-frequency chamber which can be irradiated with at least one radiation source, in which a reactor can be exposed to the action of the high-frequency field, the reactor being able to be closed by a cover, the reactor being fixed on or in the upper wall of the high-frequency chamber through a separable positive and nonpositive engagement connection, such as screwing, clamping, bayonet clamping, etc., and contains the solid, liquid and/or gaseous substance or substance mixtures to be investigated or to be treated, in a preferably pressure-resistant surroundings, characterized by the fact that rod-like elements (5) are provided around the reactor (1), and form a pressure-resistant cage, which can be connected to the wall of the high-frequency chamber (2) in a positive and nonpositive manner of engagement to secure them either individually through fixing element (6) and each of which has a guide (11) for holding a crown-shaped holder (12) for the reactor (1) or a reactor closure (13, 13a) where the holder (12) is fixed in its position in the manufacture of the positive and nonpositive engagement fixing of the rod-like elements (5).
2. Device according to Claim 1, characterized by the fact that the rod-like elements (5) are cylindrical and have as a guide a narrowing of the diameter which does not reach to the end of the rod-like element (5) and that the holder (12) preferably has u-shaped grooves which correspond in their position with the guides of the rod-like elements (14 [sic, should be 5]).
3. Device according to Claim 1, characterized by the fact that the fixing elements each consist of a fixing adapter (6) with a threaded bore (7) on the face, with which the rod-like elements (5) can be secured as well as separated with the aid of screw connection (16) on bores (8) in the upper wall (4), optionally through an annular flange (10) and on the cover (3) of the high-frequency chamber (2).
4. Device according to Claim 1, characterized by the fact that the fixing elements always consist of a threaded bore on the face, provided directly in the rod-like elements (5), through which the rod-like elements (5) can be secured on or separated from bores (8) with the aid of screw connection (16) in the upper wall (4), optionally through an annular flange (10) and in the cover (3) of the high-frequency chamber (2).
5. Device according to Claims 3 or 4, characterized by the fact that the cover (3) of reactor (1) has screw connections (16) corresponding with the position of the bores (8) of the upper wall (4) of the high-frequency chamber (2) as well as with the threaded bores of the rod-like elements (5) or their fixing adapter (6), whereby, with the securing of the cover (3) on the upper wall (4) of the high-frequency chamber (2), optionally reinforced with at least one annular flange (10, 19), at the same time the rod-like elements (5) are secured and fixed in their position to clamp the crown-shaped holder (12), and the high-frequency chamber is closed so that it is tight to microwaves.

6. Device according to Claim 1, characterized by the fact that the reactor (1) has an upper reactor closure (15, 15a) which is preferably connected to cover (3) and, together with this, can be separated from reactor (1).
7. Device according to Claim 1, characterized by the fact that the reactor (1) has a lower reactor closure (13, 13a) which preferably can be separated from reactor (1) and is provided for holding holder (12).
8. Device according to Claim 7, characterized by the fact that the holder (12) and/or the lower reactor closure (13, 13a) have guide elements for the purpose of fixing the position of the reactor (1), for example, a cylinder groove (18) and a cylinder flange (17) engaging in the above.
9. Device according to Claim 1, characterized by the fact that stop elements, for example an annular flange (19), are provided which facilitate the positive and nonpositive engagement of the rod-like elements (2 [should be (5)]) on the upper wall (4) of the high-frequency chamber (7 [should be (2)]), especially for the purpose of rapid and low-cost mounting or changing of the configuration of the device.
10. Device according to Claims 6 and 9, characterized by the fact that the annular flange (19) is designed at the same time as a guide element for the cover (3) and the upper reactor closure (15, 15a).
11. Device according to Claim 1, characterized by the fact that it is built as a single reactor system.
12. Device according to Claim 1, characterized by the fact that, as a multiple reactor system, it is provided with multiple reaction chambers for holding inserts.
13. Device according to Claims 1 and/or 12, characterized by the fact that the reactor or the multiple reaction chambers are designed as a batch reactor system.
14. Device according to Claims 1 and/or 12, characterized by the fact that the reactor or the multiple reaction chambers are designed as a flow-through reactor system.